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## CENTRAL INTELLIGENCE AGENCY

## INFORMATION REPORT

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SECURITY INFORMATION

COUNTRY	Bulgaria	REPORT	<input type="text"/>	25X1
SUBJECT	Bulgarian Railroads	DATE DISTR.	16 October 1953	
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This is UNEVALUATED Information

THE SOURCE EVALUATIONS IN THIS REPORT ARE DEFINITIVE.  
THE APPRAISAL OF CONTENT IS TENTATIVE.  
(FOR KEY SEE REVERSE)

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### General Information

1. The Bulgarian railroad network consists exclusively of single-track lines, standard and narrow gauge.
2. None of the railroad lines are electrified, although it is planned that the whole network is to be electrified in the future. The realization of this plan depends upon the construction of power plants, some of which are now under construction. Poles to support the cables for the Sofia-Mezdra line have been erected, but no other work has been done to accomplish this electrification.
3. The tunnels located along the railroad lines are of two types:
  - a. Type "A", tunnels built prior to 1920; these permit only the passage of trains by ordinary traction, with steam locomotives; and
  - b. Type "B", tunnels built after 1920 and slightly larger than the preceding, built to permit the installation of electric cable and the passage of ordinary steam locomotives as well as electric locomotives.
4. The characteristics of type "A" tunnels are as follows:
  - a. Width at the base: 4.36 meters;
  - b. Width at the impost of the arch: 5 meters;
  - c. Lateral radius of the arch: 3.3 meters;
  - d. Upper radius of the arch: 2.25 meters;
  - e. Height of the ballast: 0.45 meters;
  - f. Height to the impost of the arch: 2.925 meters;

25 YEAR RE-REVIEW

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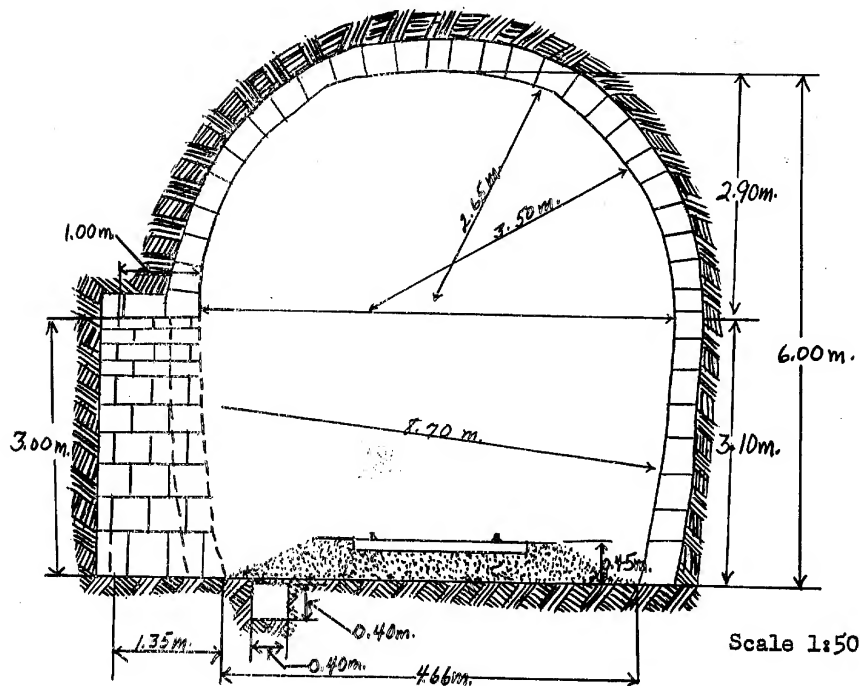
(Note: Washington Distribution Indicated By "X"; Field Distribution By "#".)



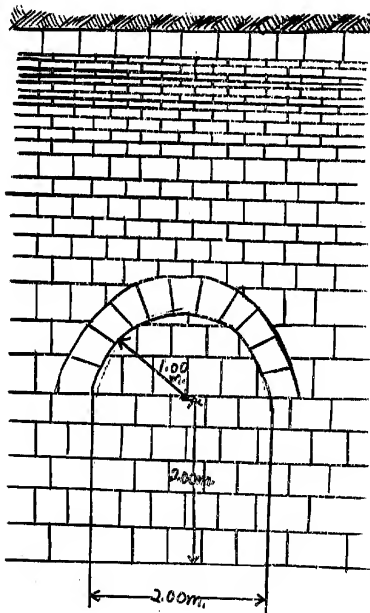
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6. The niches excavated in the tunnels, both type "A" and type "B" have the following characteristics:



Width at the base and at the impost of the arch: 2.00 meters.

Radius of the arch: 1.00 meters.

Depth of the niche at the base: 1.35 meters.

Depth at the top of the arch: 1.00 meters.

The niches are placed either on one side or alternately on the two sustaining walls. Ordinarily the distance between successive niches is 50 meters.

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7. A longitudinal drainage channel is built either along the axis of the tunnel or near one of the sustaining walls for the purpose of gathering and carrying off water infiltrating the tunnel from the interior. Small lateral channels flow into this duct. The slope of the drainage ducts conforms with the slope of the tunnel; uniform dimensions are 0.40 by 0.40 meters. In the longer tunnels, and only when the amount of infiltrating water demands it, the drainage canal increases gradually up to a maximum of 1 meter by 1 meter. The channels are covered with concrete slabs 10 centimeters thick.

#### Railroad Lines in Operation -

8. All railroad lines discussed in this section appear on the sketch in Appendix A, pages 28 and 29.
9. The Sofia - Gyueshevo (N 42-14, E 22-29) railroad line via Radomir (N 42-33, E 22-58) and Kyustendil (N 42-17, E 22-42):<sup>1</sup> - April 1951
- a. This line is 134 kilometers long and is standard gauge. Rails are of German make, 12 meters long. The construction of the Sofia-Radomir section dates back to about 1890, and the Radomir-Gyueshevo section was built between 1906 and 1910. This was put into operation at the end of 1910 and the early part of 1911. This line has never undergone great repair work.
  - b. Bridges: All the bridges described below were built at the same time the line was laid down. The numbers correspond to those of the sketch in Appendix B, pages 30 and 31.
    - (1) Bridge over the Struma River, called Tsurkva, from the area in which it is located (Tsurkva, N 42-36, E 23-07). Located at the 28 kilometer mark from the main station of Sofia.
 

Type of bridge: Metal, girder, single-span.

Abutments: Masonry.

Length: About 40 meters.

Width: 6 meters.

Height from the river bed: 7 meters.

Service paths: Two, each 1 meter wide, constructed of wooden planks.

Sides: Iron railing.

Current: Slow.

High water mark: 2.50 meters (in spring, from the melting snow).

Low water mark: 1.20 meters.
    - (2) Bridge over the Struma River, called Temelkovo, from the area in which it is located (Temelkovo, formerly Batanovtsi, N 42-36, E 25-58). Located at the 40 kilometer mark from the main station of Sofia.

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Type of bridge: Metal, girder, double-span (each 18 meters).

Pile and abutment: Masonry.

Length: About 45 meters.

Width: 6 meters.

Height from the river bed: 4 meters.

Service paths: Two, wooden paving.

Sides: Metal railing.

Current: Very rapid.

High water mark: 3 meters.

Low water mark: About 1 meter.

- (3) Bridge over the Blato Marsh, called "Blato" from the name of the marsh (N 42-28, E 22-55). Located at the 57 kilometer marker from the main Sofia station, three kilometers south of the Vurbas railroad station (N 42-31, E 22-57).

Type of bridge: Metal, girder, single-span.

Abutments: Masonry.

Length: About 30 meters.

Width: 6 meters.

Height from the river bed: About 4 meters.

Service paths: Two, each 1 meter wide, paved with chestnut oak.

Sides: Metal railing.

Current: None (marshes).

High water mark: 1 meter.

Low water mark: A few centimeters.

- (4) Bridge over the Struma River, called Kalishte (N 42-29, E 22-50). Located at the 60 kilometer marker from the main station of Sofia, three kilometers south of the Blato bridge described in the unit above.

Type of bridge: Metal, girder, single-span.

Abutments: Masonry.

Length: About 30 meters.

Width: 6 meters.

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Height from the river bed: About 7 meters.

Service paths: Two, each 1 meter wide, paved in wood.

Sides: Metal railing.

Current: Swift.

High water mark: About 3 meters.

Low water mark: 40 centimeters.

- (5) Bridge over the Struma River, called Zemen, from the Zemen railroad station (N 42-29, E 22-45). Located at the 71 kilometer marker from the main station of Sofia, six kilometers southwest of the Zemen railroad station.

Type of bridge: Metal, girder, double-span (about 20 meters each).

Piling and abutments: Masonry.

Length: 45-50 meters.

Width: 6 meters.

Height from the river bed: About 7 meters.

Service paths: Two, each 1 meter wide, paved in wood.

Sides: Metal railing.

Current: Rapid.

High water mark: About 3 meters in spring from the melting snow and in the fall from the rains.

Low water mark: 40-50 centimeters.

- (6) Bridge over the Struma River, called Skukavitsa (waterfall) from the Skukavitsa railroad station (N 42-25, E 22-41). Located at the 80 kilometer marker from the main station of Sofia, about 5 kilometers northwest of the Skukavitsa railroad station.

Type of bridge: Metal, girder, single-span.

Abutment: Masonry.

Length: About 40 meters.

Width: 6 meters.

Height from the river bed: 7 meters.

Service paths: Two, each 1 meter wide, paved in wood.

Sides: Metal railing.

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Current: Rapid.

High water mark: About 3 meters.

Low water mark: 40-50 centimeters.

- (7) Bridge over the Struma River, called Pozernitsi, from the name of the locality. Located at the 82 kilometer marker from the main station of Sofia, about three kilometers northwest of the railroad station of Skukavitsa (N 42-25, E 22-41).

Type of bridge: Metal, girder, single-span.

Abutments: Masonry.

Length: About 40 meters.

Width: 6 meters.

Height from the river bed: About 7 meters.

Service paths: Two lateral platforms, each 1 meter wide, paved in wood.

Sides: Metal railing.

Current: Swift.

High water mark: About 3 meters.

Low water mark: 40-50 centimeters.

- (8) Bridge over the Struma River, called Skukavitsa. Located at the 86 kilometer marker from the main railroad station of Sofia, about 1 kilometer south of the railroad station of Skukavitsa (N 42-25, E 22-41).

Type of bridge: Metal, single-span.

Abutments: Masonry.

Length: Approximately 40 meters.

Width: 6 meters.

Height from the river bed: About 7 meters.

Service paths: Two, each about 1 meter wide, paved in wood.

Sides: Metal railing.

Current: Rapid.

High water mark: About 3 meters.

Low water mark: 40-50 centimeters.

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- (9) Bridge over the Struma River, called Razhdavitsa, from the Razhdavitsa railroad station (N 42-23, E 22-42). Located at the 96 kilometer marker from the Sofia railroad station, about two kilometers north of Razhdavitsa railroad station.

Type of bridge: Metal, girder, single-span.

Abutments: Masonry.

Length: 40 meters.

Width: 6 meters.

Height from the river bed: About 7 meters.

Service paths: Two, each 1 meter wide, paved in wood.

Sides: Metal railing.

Current: Swift.

High water mark: About 3 meters.

Low water mark: 40-50 centimeters.

- (10) Bridge over the Bistritsa River (should probably be Dragovishtitsa River). Located at the 100 kilometer marker from the main Sofia station, about 2 kilometers south of the railroad station of Razhdavitsa (N 42-23, E 22-42).

Type of bridge: Metal, girder, double-span (about 40 meters each).

Piling and abutments: Masonry.

Length: About 100 meters.

Width: 6 meters.

Height from the river bed: About 1.50 meters.

Service paths: Two, each 1 meter wide, paved in wood.

Sides: Metal railing.

Current: Slow.

High water mark: During the spring season after the snow melts, the stream sometimes rises several centimeters above the railroad line.

Low water mark: In the summer, the stream is completely dry.

- (11) Bridge over the Dragovishtitsa Stream (should probably be the Bistritsa River). Located at the 102 kilometer marker from the main Sofia station, about 4 kilometers south of the Razhdavitsa railroad station (N 42-23, E 22-42).

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Type of bridge: Metal, girder, single-span.

Abutments: Masonry.

Length: About 40 meters.

Width: 6 meters.

Height above the river bed: About 2 meters.

Service paths: Two, each 1 meter wide, paved in wood.

Sides: Metal railing.

Current: Slow.

High water mark: About 1.50 meters.

Low water mark: Dry in the summer.

- (12) Bridge over the Bistritsa River, called Krushalevo (N 42-21, E 22-33). Located at about the 114.5 kilometer marker from the main Sofia station, about 10 kilometers northwest of the railroad station of Kyustendil.

Type of bridge: Metal, girder, single-span.

Abutments: Masonry.

Length: About 20 meters.

Width: 6 meters.

Height above the river bed: About 10 meters.

Service paths: Two, each 1 meter wide, paved in wood.

Sides: Metal railing.

Current: Swift.

High water mark: About 3 meters.

Low water mark: About 60 centimeters.

- c. Tunnels: All the tunnels listed below belong to type "A", ~~and are for steam~~ traction, and were built prior to 1920. The numbers and names of the tunnels correspond to those of the sketch in Appendix B, pages 30 and 31.

- (1) Zemen - Tunnel length, 280 meters. Located at the 68 kilometer marker from the main Sofia station, about 2,500 meters southwest of the railroad station of Zemen (N 42-29, E 22-45).

Terrain: Calcareous rock, not very compact.

Shape of axis: Circular.

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Slope: 3 percent.

Facing: Arch and sides only partially faced.

Niches: Arranged on the left side of the tunnel. The distance between successive niches is 50 meters.

Tunnel cross-section: Polycentric.

- (2) Zemen - Tunnel length, 100 meters. Located at the 72 kilometer marker from the main Sofia station, about 5,500 meters southwest of the railroad station of Zemen (N 42-29, E 22-45).

Terrain: Calcareous rock, not very compact.

Shape of axis: Rectilinear.

Slope: 3 percent.

Facing: Partially, in stone.

Niches: A single niche, placed in the center of the tunnel on the left side. The niche is completely faced in stone.

Cross-section of the tunnel: Polycentric.

- (3) Skukavitsa - Tunnel length, 140 meters. Located at the 80 kilometer marker from the main Sofia station, about 5 kilometers north of the railroad station of Skukavitsa (N 42-25, E 22-41).

Terrain: Friable.

Shape of the axis: Circular.

Slope: 3 percent.

Facing: Roof and sides faced in sandstone.

Niches: Two, placed on the left side, 50 meters apart.

Cross-section of the tunnel: Polycentric.

- (4) Pozernitsi - Tunnel length, 400 meters. Located at the 82 kilometer marker from the main Sofia station, about 3 kilometers north of the railroad station of Skukavitsa (N 42-25, E 22-41).

Terrain: Soft rock.

Shape of the axis: Circular.

Slope: 3 percent.

Facing: The tunnel is completely faced in sandstone.

Niches: On the left side, 50 meters apart, faced in sandstone.

Cross-section of the tunnel: Polycentric.

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- (5) and (6) Skukavitsa - Tunnel lengths, 70 meters and 90 meters respectively. Located at the 86 kilometer marker from the main Sofia station, about 1 kilometer south of the railroad station of Skukavitsa (N 42-25, E 22-41).

Terrain: Soft rock.

Shape of the axis: Rectilinear.

Slope: 3<sup>0</sup> percent.

Facing: The tunnels are completely faced in sandstone.

Niches: A single niche for each tunnel. These are faced.

Cross-section of the tunnels: Polycentric.

- (7) Razhdavitsa - Tunnel length, 280 meters. Located at the 89 kilometer marker from the main Sofia station, 9 kilometers north of the railroad station of Razhdavitsa (N 42-23, E 22-42).

Terrain: Compact rock.

Shape of the axis: Circular.

Slope: 3 percent.

Facing: The tunnel is faced only at certain places; sandstone facing.

Niches: At the left side at 50 meter intervals, completely faced.

Cross-section of the tunnel: Polycentric.

- (8) Razhdavitsa - Tunnel length, 270 meters. Located at the 91 kilometer marker from the main railroad station of Sofia, 7 kilometers north of the Razhdavitsa railroad station (N 42-23, E 22-42).

Terrain: Compact rock.

Shape of the axis: Circular.

Slope: 3 percent.

Facing: Partially faced with hard stone.

Niches: At the left side of the tunnel, at 50 meter intervals, completely faced.

Cross-section of the tunnel: Polycentric.

- (9) Razhdavitsa - Tunnel length, 220 meters. Located at the 96 kilometer marker from the main Sofia station, 2 kilometers north of the railroad station of Razhdavitsa (N 42-23, E 22-42).

Terrain: Soft rock.

Shape of the axis: Circular.

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Slope: 3 percent.

Facing: Faced completely in hard stone.

Niches: At the left side, at 50 meter intervals, completely faced.

Cross-section of the tunnel: Polycentric.

- (10) and (11) Krushlevo - Tunnel lengths, 70 meters and 120 meters respectively. Located at the 114.5 kilometer marker from the main Sofia station, about 10 kilometers northwest of the Kyustendil railroad station.

Terrain: Soft rock.

Shape of the axis: Rectilinear.

Slope: 3 percent.

Facing: Completely faced in hard stone.

Niches: At the left side, 50 meter intervals, completely faced.

Cross-section of the tunnels: Polycentric.

- (12), (13), and (14) Zerovitsa - Tunnel lengths, 240 meters, 130 meters, and 116 meters respectively. Located at the 115.2 kilometer, 115.5 kilometer, and 116 kilometer markers from the main Sofia station, between the 7 and 8 kilometer markers east of the Zerovitsa railroad station (N 42-20, E 22-32).

Terrain: Soft rock.

Shape of the axis: Circular.

Slope: 3 percent.

Facing: Entirely faced in hard rock.

Niches: At the left side, 50 meter intervals, completely faced.

Cross-section of the tunnels: Polycentric.

- (15) Zerovitsa - Tunnel length, 150 meters. Located at the 120 kilometer marker from the main Sofia station, about 3 kilometers north of the Zerovitsa railroad station (N 42-20, E 22-32).

Terrain: Soft rock.

Shape of the axis: Circular.

Slope: 3 percent.

Facing: Completely faced with hard stone.

Niches: At the left side, 50 meter intervals, completely faced.

Cross-section of the tunnel: Polycentric.

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- (16) Zerovitsa - Tunnel length, 180 meters. Located at the 122 kilometer marker from the main Sofia station, 1 kilometer north of the Zerovitsa railroad station (N 42-20, E 22-32).

Terrain: Soft rock.

Shape of the axis: Circular.

Slope: 3 percent.

Facing: Completely faced with hard stone.

Niches: At the left side, 50 meter intervals, completely faced.

Cross-section of the tunnel: Polycentric.

- (17) Zerovitsa - Tunnel length, 150 meters. Located at the 124 kilometer marker from the main Sofia station, 1 kilometer south of the Zerovitsa railroad station (N 42-20, E 22-32).

Terrain: Soft rock.

Shape of the axis: Rectilinear.

Slope: 3 percent.

Facing: Completely faced with hard stone.

Niches: At the left side, 50 meter intervals, completely faced.

Cross-section of the tunnel: Polycentric.

10. The Sofia - Petrich (N 41-24, E 23-13) line, via Radomir (N 42-33, E 22-58), Dupnitsa (N 42-16, E 23-08), Gorna Dzhumaya (N 42-01, E 23-06, now Blagoevgrad), and Sveti Vrach (N 41-34, E 23-14, now Sandanski) - Fall 1951 : <sup>2</sup>

- a. This line is 224 kilometers long.<sup>3</sup> It is standard gauge; rails are German make, 12 meters long. The construction of the Sofia-Dupnitsa section dates back to the period immediately after 1920. The Dupnitsa-Petrich section was originally narrow-gauge (80 centimeters) and was converted to normal gauge in 1945-1948, with some modifications also made in the route. In the spring of 1951, construction of a new highway was begun on the old narrow-gauge route, on the Krupnik-Petrich section.

- b. Bridges: See Appendix C, pages 32 and 33.

- (1) Bridge over unidentified river at 76.5 kilometer marker from the main Sofia station, about 2.5 kilometers south of the Diliyan station (sic).

Type of bridge: Reinforced concrete, arched, single-span.

Abutments: Reinforced concrete.

Length: 12 meters.

Width: 6 meters.

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Height above the river bed: 20 meters.

Service paths: Two, each 1 meter wide, concrete.

Sides: Metal railing.

Current: Swift.

High water mark: 4-5 meters.

Low water mark: 40-50 centimeters.

(2) Other bridges: No details.

c. Viaducts:

- (1) Located at kilometer marker 198 from the main Sofia station, 6 kilometers north of the Sveti Vrach station (N 41-34, E 23-14).

Type of viaduct: Reinforced concrete.

Height: About 7 meters.

Length: About 6 meters.

Width: About 5.5 meters.

- (2) Located at about kilometer marker 202 from the main Sofia station, about 2 kilometers north of the Sveti Vrach station (N 41-34, E 23-14).

Type of viaduct: Reinforced concrete.

Height: About 7 meters.

Length: About 6 meters.

Width: About 5.5 meters.

d. Tunnels: All the tunnels listed below belong to type "B", i.e., for both steam and electric traction, and were built after 1920. The numbers indicating the tunnels correspond to those in Appendix C, pages 32 and 33.

- (1) Tunnel length, 350 meters. Located at kilometer marker 75 from the main Sofia station, about 1 kilometer south of the Diliyan (sic) railroad station.

Terrain: Soft rock.

Shape of the axis: Circular.

Slope: 3 percent.

Facing: Roof and sides faced in concrete blocks 60 by 20 centimeters, 35 centimeters thick, mouth of the tunnel in granite.

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Niches: Alternating on both sides, at 50 meter intervals. Faced like the tunnel.

Cross-section of the tunnel: Polycentric.

- (2) Tunnel, 150 meters long. Located at kilometer marker 103.3 from the main Sofia station, opens 550 meters north of the railroad station of Dupnitsa (N 42-16, E 23-08).

Terrain: Soft rock.

Shape of the axis: Circular.

Slope: 3 percent.

Facing: Roof and sides faced in concrete blocks, the opening in granite.

Niches: Alternating on both sides, at 50 meter intervals. Faced like the tunnel.

Cross-section of the tunnel: Polycentric.

- (3) Tunnel, 120 meters long. Located about 150 meters south of the mouth of Tunnel No. 2.

Terrain: Soft rock.

Shape of the axis: Circular.

Slope: 3 percent.

Facing: Roof and sides faced in concrete blocks 60 by 20 centimeters, 35 centimeters thick, mouth of the tunnel in granite.

Niches: Alternating on both sides, at 50 meter intervals. Faced like the tunnel.

Cross-section of the tunnel: Polycentric.

- (4) Tunnel, 200 meters long. Located at kilometer marker 138 from the main Sofia station, with mouth about 6.8 kilometers north of the Gorna Dzhumaya station (N 42-01, E 23-06).

Terrain: Compact rock.

Shape of the axis: 4.5 percent.

Facing: Roof and sides faced in concrete blocks 60 by 20 centimeters, 35 centimeters thick, mouth of the tunnel in granite.

Niches: Alternating on both sides, at 50 meter intervals. Faced like the tunnel.

Cross-section of the tunnel: Polycentric.

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- (5) Tunnel, 120 meters long. Located at the 140 kilometer marker from the main Sofia station, about 5 kilometers north of the Gorna Dzhumaya station (N 42-01, E 23-06).

Terrain: Compact rock.

Shape of the axis: Circular.

Slope: 4.5 percent.

Facing: Roof and sides faced in concrete blocks 60 by 20 centimeters, 35 centimeters thick, mouth of the tunnel in granite.

Niches: Alternating on both sides, at 50 meter intervals. Faced like the tunnel.

Cross-section of the tunnel: Polycentric.

- (6) to (16). Located in the section included between kilometer markers 167 and 195 from the main Sofia station

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Tunnel lengths: Tunnel 6 - 250 meters.  
Tunnel 7 - 300 meters.  
Tunnel 8 - 350 meters.  
Tunnel 9 - 50 meters.  
Tunnel 10 - 420 meters.  
Tunnel 11 - 70 meters.  
Tunnel 12 - 800 meters.  
Tunnel 13 - 220 meters.  
Tunnel 14 - 380 meters.  
Tunnel 15 - 500 meters.  
Tunnel 16 - 300 meters.

Terrain: Compact rock.

Shape of the axis: Circular, except Tunnel 9 which is rectilinear.

Slope: 3.5 percent.

Facing: Roof and sides faced in concrete blocks 60 by 20 centimeters, 35 centimeters thick, mouth of the tunnel in granite.

Niches: Alternating on both sides, at 50 meter intervals. Faced like the tunnel.

Cross-section of the tunnel: Polycentric.

- (17) Tunnel, 250 meters long. Located at kilometer marker 218 from the main Sofia station, about 6 kilometers north of Petrich (N 41-24, E 23-13).

Terrain: Compact rock.

Shape of the axis: Circular.

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Slope: 3.5 percent.

Facing: Roof and sides faced in concrete blocks 60 by 20 centimeters, 35 centimeters thick, mouth of the tunnel in granite.

Niches: Alternating on both sides, at 50 meter intervals. Faced like the tunnel.

Cross-section of the tunnel: Polycentric.

- (18) Tunnel, 50 meters long. Located at kilometer marker 218 from the main Sofia station, about 5.5 kilometers north of the Petrich station (N 41-24, E 23-13).

Terrain: Compact rock.

Shape of the axis: Rectilinear.

Slope: 3.5 percent.

Facing: Roof and sides faced in concrete blocks 60 by 20 centimeters, 35 centimeters thick, mouth of the tunnel in granite.

Niches: Alternating on both sides, at 50 meter intervals. Faced like the tunnel.

Cross-section of the tunnel: Polycentric.

11. The Sofia - Mezdra (N 43-09, E 23-40) line, via Svoge (N 42-58, E 23-19). Fall 1951;

- a. This line is 88.6 kilometers long. It is standard gauge; rails 25 meters long (Czech make) were laid in 1950 to replace the old ones (length not known). The line was laid between the years 1892 and 1896. Rail replacement and repairs were carried out during 1950 and the first months of 1951. 25X1

- b. Tunnels: The numbers given for these tunnels correspond to those actually used to distinguish the various borings. All tunnels are type "A", i.e., for steam traction and were built prior to 1920. The numbers of the tunnels also correspond to those in Appendix D, pages 34, 35, 36, and 37.

- (1) Tunnel length, 436 meters. Located at about kilometer marker 19 from the main Sofia station.

Terrain: Rocky, not too compact.

Shape of the axis: Circular. Slope: 3.3 percent.

Facing: Roof and sides faced in sandstone.

Niches: Arranged on one side, at 50 meter intervals. Faced in red sandstone.

Cross-section of the tunnel: Polycentric.

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- (2) Tunnel length, 150 meters. Located at the 20 kilometer marker from the main Sofia station.

Terrain: Compact rock.

Shape of the axis: Circular; Slope: 3 percent.

Facing: Roof and sides faced in sandstone.

Niches: Arranged on one side, at 50 meter intervals. Faced in red sandstone.

Cross-section of the tunnel: Polycentric.

- (3) Tunnel length, 120 meters. Located at the 21.6 kilometer marker from the main Sofia station.

Terrain: Compact rock.

Shape of the axis: Circular; Slope: 3 percent.

Facing: Roof and sides faced in sandstone.

Niches: Arranged on one side, at 50 meter intervals. Faced in red sandstone.

Cross-section of the tunnel: Polycentric.

- (4) Tunnel length, 200 meters. Located at the 22.1 kilometer marker from the main Sofia station.

Terrain: Compact rock.

Shape of the axis: Circular; Slope: 3 percent.

Facing: Roof and sides faced in sandstone.

Niches: Arranged on one side, at 50 meter intervals. Faced in red sandstone.

Cross-section of the tunnel: Polycentric.

- (5) Tunnel length, 150 meters. Located at the 26 kilometer marker from the main Sofia station.

Terrain: Compact rock.

Shape of the axis: Circular; Slope: 3 percent.

Facing: Roof and sides faced in sandstone.

Niches: Arranged on one side, at 50 meter intervals. Faced in red sandstone.

Cross-section of the tunnel: Polycentric.

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25X1

- (6) Tunnel length, 60 meters. Located at 27.2 kilometer marker from the main Sofia station.
- Terrain: Compact rock.
- Shape of the axis: Rectilinear. Slope 3 percent.
- Facing: Roof and sides faced in sandstone.
- Niches: Arranged on one side, at 50 meter intervals. Faced in red sandstone.
- Cross-section of the tunnel: Polycentric.
- (7) Tunnel length, 350 meters. Located at the 27.9 kilometer marker from the main Sofia station.
- Terrain: Compact rock.
- Shape of the axis: ~~Circular~~ Circular.
- Slope: 3 percent.
- Facing: Roof and sides faced in sandstone.
- Niches: Arranged on one side, at 50 meter intervals. Faced in red sandstone.
- Cross-section of the tunnel: Polycentric.
- (8) Tunnel length, 200 meters. Located at 32.1 kilometer marker from the main Sofia station.
- Terrain: Compact rock.
- Shape of the axis: ~~Circular~~ Circular.
- Slope: 3 percent.
- Facing: Roof and sides faced in sandstone.
- Niches: Arranged on one side, at 50 meter intervals. Faced in red sandstone.
- Cross-section of the tunnel: Polycentric.
- (9) Tunnel length, 120 meters. Located at 46 kilometer marker from the main Sofia station.
- Terrain: Compact rock.
- Shape of the axis: ~~Circular~~ Circular.
- Slope: 3 percent.

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25X1

Facing: Roof and sides faced in sandstone.

Niches: Arranged on one side, at 50 meter intervals. Faced in red sandstone.

Cross-section of the tunnel: Polycentric.

- (10) Tunnel length, 80 meters. Located at 46.5 kilometer marker from the main Sofia station.

Terrain: Compact rock.

Shape of the axis: Rectilinear.

Slope: 3 percent.

Facing: Roof and sides partially faced in sandstone.

Niches: Arranged on one side, at 50 meter intervals. Faced in red sandstone.

Cross-section of the tunnel: Polycentric.

- (11) Tunnel length, 320 meters. Located at 48 kilometer marker from the main Sofia station.

Terrain: Rocky, not very compact.

Shape of the axis: Circular.

Slope: 3 percent.

Facing: Roof and sides faced in sandstone.

Niches: Arranged on one side, at 50 meter intervals. Faced in red sandstone.

Cross-section of the tunnel: Polycentric.

- (12) Tunnel length, 300 meters. Located at 52.5 kilometer marker from the main Sofia station. Collapsed in 1898; no attempts to restore until 1948, at which time attempts were partly successful but were abandoned because of the crumbly nature of the terrain. At this point, the railroad line turns off and runs along the foot of the mountain for about 400 meters, then rejoins the regular line.

- (13) Tunnel length, 120 meters. Located at the 54 kilometer marker from the main Sofia station.

Terrain: Compact rock.

Shape of the axis: Circular.

Slope: 3 percent.

Facing: Roof and sides faced in sandstone.

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25X1

Niches: Arranged on one side, at 50 meter intervals. Faced in red sandstone.

Cross-section of the tunnel: Polycentric.

- (14) Tunnel length, 180 meters. Located at the 62 kilometer marker from the main Sofia station.

Terrain: Compact rock.

Shape of the axis: Circular.

Slope: 3 percent.

Facing: Roof and sides partially faced in sandstone.

Niches: Arranged on one side, at 50 meter intervals. Faced in red sandstone.

Cross-section of the tunnel: Polycentric.

- (15) Tunnel length, 100 meters. Located at the 66.5 kilometer marker from the main Sofia station.

Terrain: Compact rock.

Shape of the axis: Circular.

Slope: 3 percent.

Facing: Roof and sides partially faced in sandstone.

Niches: Arranged on one side, at 50 meter intervals. Faced in red sandstone.

Cross-section of the tunnel: Polycentric.

- (16) Tunnel length, 70 meters. Located at the 68 kilometer marker from the main Sofia station.

Terrain: Compact rock.

Shape of the axis: Circular.

Slope: 3 percent.

Facing: Roof and sides faced in sandstone.

Niches: Arranged on one side, at 50 meter intervals. Faced in red sandstone.

Cross-section of the tunnel: Polycentric.

- (17) Tunnel length, about 70 meters. Located at 69.5 kilometer marker from the main Sofia station.

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25X1

Terrain: Compact rock.

Shape of the axis: Circular.

Slope: 3 percent.

Facing: The tunnel is not faced. The opening of the tunnel (toward Sofia) is built of hard stone, and the other opening (toward Mezdra) is of rock without any facing.

Niches: Arranged on one side, at 50 meter intervals. Faced in red sandstone.

Cross-section of the tunnel: Polycentric.

- (18) Tunnel length, 140 meters. Located about 50 meters from the mouth of Tunnel 17.

Terrain: Compact rock.

Shape of the axis: Circular.

Slope: 3 percent.

Facing: Roof and sides faced in sandstone.

Niches: Arranged on one side, at 50 meter intervals. Faced in red sandstone.

Cross-section of the tunnel: Polycentric.

- (19) Tunnel length, 320 meters. Located at the 70.5 kilometer marker from the main Sofia station.

Terrain: Compact rock.

Shape of the axis: Circular.

Slope: 3 percent.

Facing: Roof and sides faced in sandstone.

Niches: Arranged on one side, at 50 meter intervals. Faced in red sandstone.

Cross-section of the tunnel: Polycentric.

- (20) Tunnel length, 250 meters. Located at the 71 kilometer marker from the main Sofia station.

Terrain: Compact rock.

Shape of the axis: Circular.

Slope: 3 percent.

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25X1

Facing: Roof and sides partially lined with sandstone.

Niches: Arranged on one side, at 50 meter intervals. Faced in red sandstone.

Cross-section of the tunnel: Polycentric.

- (21) Tunnel length, 220 meters. Located about 100 meters from the mouth of Tunnel 20.

Terrain: Compact rock.

Shape of the axis: Almost circular.

Slope: 3 percent.

Facing: Roof and sides partially lined with sandstone.

Niches: Arranged on one side, at 50 meter intervals. Faced in red sandstone.

Cross-section of the tunnel: Polycentric.

- (22) Tunnel length, 18 meters. Located at the 72 kilometer marker from the main Sofia station.

Terrain: Compact rock.

Shape of the axis: Rectilinear.

Other characteristics: The same as Tunnel 21.

12. The Sofia - Dolna Kamaritsa (N 42-43, E 23-52) line, via Makotsevo (N 42-42, E 23-48): Fall 1951. (See Appendix E, page 38)

- a. This line is 62 kilometers long. It is standard gauge; rails are 12 meters long, German make. The construction of the Sofia-Makotsevo section, 50 kilometers long, dates to the 1930-1935 period. After the Sofia-Makotsevo section was completed, work was begun on the Makotsevo-Dolna Kamaritsa trunk, which is 12 kilometers long. For this purpose, a tunnel was made, the roadbed prepared, and the laying of the track from Makotsevo toward Dolna Kamaritsa was begun. Work was abandoned in 1940 when hostilities broke out, and the tunnel was used to store ammunition. In 1945, work was resumed and finished in a year's time. The new railroad trunk with terminal station at Dolna Kamaritsa was immediately put into operation.
- b. A rail-line connects Gara Yana (N 42-43, E 23-34) with Novoseltsi (N 42-40, E 23-36, now Elin Pelin). In 1946, work was begun on the extension of the line to Pirdop (see "Lines under Construction" below).
- c. Tunnels: There is a single tunnel along this line. It is of type "B", i.e., for steam and electric traction. Location at the 53 kilometer marker from the main Sofia station. The opening of the tunnel is 2 kilometers from the Makotsevo station in the direction of Dolna Kamaritsa. Length about 100 meters.

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25X1

Terrain: Argillaceous, not very consistent.

Shape of the axis: Rectilinear.

Slope: 3 percent.

Facing: Because of the poor consistency of the terrain, the entire tunnel (including portals) is reinforced with concrete 40 centimeters thick.

Niches: One niche, also faced in concrete.

Cross-section of the tunnel: Polycentric.

Railroad Lines Under Construction - Fall 1951.

13. The Dolna Kamaritsa (N 42-43, E 23-52) - Pirdop (N 42-42, E 24-11) line, via Bunovo (N 42-43, E 23-56) and Mirkovo (N 42-42, E 23-59): (See Appendix E, page 38.)

a. This line is approximately 23 kilometers long, and is standard gauge. Construction work was begun in 1946. As of fall 1951, the tunnel was almost completed, while the track-laying was only partially done, because rails (being received from the USSR) were still in shortage. This line was to have been opened to traffic in September 1951, but the opening date is now expected to be at the end of 1952.

b. Tunnels: There is a single tunnel along the Dolna Kamaritsa-Pirdop line, known as the "Vasil Kolarov Tunnel." It is 3,200 meters long and is located at the 62.3 kilometer marker from the main Sofia station, about 300 meters from the Dolna Kamaritsa station. The mouth of the tunnel is about 2.5 kilometers from the Bunovo station (N 42-43, E 23-56). The tunnel is type "B", i.e., for steam and electric traction.

Terrain: Not very consistent, crumbly.

Shape of the axis: Circular.

Slope: About 3 percent.

Facing: Roof and sides in reinforced concrete. As of fall 1951, the portals were not finished.

Niches: Alternate on the two sides, set at 50 meter intervals.

Drainage canals: Because of the great amount of infiltrating water, the dimensions are about 1 meter by 1 meter.

Cross-section of the tunnel: Polycentric.

Status of construction work: Tunnel not yet completed; work has slowed down because of the difficulties met in boring through the crumbly terrain.

c. Viaducts: Located at the 67 kilometer marker from the main Sofia station, about 1,500 meters from the mouth of the "Vasil Kolarov Tunnel," and about 1 kilometer from the Bunovo station (N 42-43, E 23-56).

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25X1

Type of viaduct: Reinforced concrete, 6 arched spans, 12 meters each.

Abutments and piles: Reinforced concrete.

Length: About 85 meters.

Width: About 6 meters.

Maximum height above the depression: About 20 meters.

Sides: Metal railing.

Service paths: Two, each 80 centimeters wide, concrete.

14. The Pirdop (N 42-43, E 24-11) - Sopot (N 42-39, E 24-45) line. As of fall 1951, work was in progress on the finishing of the tunnels (number unknown) along this line, and the roadbed.

25X1

the laying of the track was not begun because shipments of rail (believed to be from the USSR or Czechoslovakia) had not arrived. There is a track in operation along the route of the line, but this is used exclusively to transport workers and material to the work zone. This line was to have been opened in September 1951 at the same time as the Dolna Kamaritsa - Pirdop line (discussed in the preceding paragraph), but it is now believed that it will be opened to traffic at the end of 1951.

#### Conversion to Standard Gauge

15. As of fall 1951, the Oryakhovo (N 43-38, E 24-00) - Cherven Bryag (N 43-16, E 24-06) line, via Byala Slatina (N 43-28, E 23-56) was being converted from narrow gauge to standard gauge. In March 1951, the construction material necessary for the project began flowing, and construction work began. The gauge conversion is reported to have been mainly to avoid transferring at the Cherven Bryag station of the agricultural products produced in quantity in this area when shipping them to the inland markets.

#### Railroad Section of the Ministry of Transport

16. Headquarters of the railroad branch of the Ministry of Transport are located on Ivan Vazov Street in Sofia, on the corner of 6 September Street. The repair chief is Georgi Baychev, engineer, about 40 years old, a native of Gorna Oryakhovitsa. He is incapable, and his duties as chief of the repair unit were given him for political reasons only.
17. The repair unit is subdivided into 18 sections. It takes care of the maintenance of the entire Bulgarian network and its installations (bridges, tunnels, viaducts, stations, etc.) The maintenance of a definite section of the railroad network is assigned to each of the sections; these sections vary from 100 to 140 kilometers, the extent being determined by the intensity of the traffic existing on the line. Each section possesses a section chief (engineer), assistant section chief (engineer), and a technician.
18. Each section, in turn, is divided into subsections, three to five in number, in relation to the kilometrage of the line to be maintained; each subsection is in charge of 30 to 40 kilometers. A subsection has a subsection chief and three to

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five assistant chiefs. Normally each assistant chief has charge of 17 to 10 workers who are permanent employees. When major work is undertaken requiring a large number of laborers, this number of subordinates is temporarily increased. At the end of each working day, the subsections must present a detailed report on their activities to the subsection chief. The subsection chief summarizes these reports and transmits a report to the section chief via the technician and the assistant section chief. In turn, the section chief (an engineer), after collecting and evaluating the reports, turns them over to the maintenance unit of the Ministry of Transport. The same procedure is used to request material. No deviation from such procedure is allowed, and infractions are punished by means of disciplinary measures.

19. Headquarters and jurisdiction lines of some of the 18 sections for the maintenance of the Bulgarian railroad network are as follows:
  - a. First, second, and fifth sections: Headquarters Sofia; Lines of jurisdiction:
    - (1) First section - Sofia-Dragoman (N 42-56, E 22-56), and care of the main Sofia station.
    - (2) Second section - Sofia-Pernik (N 42-36, E 23-03)-Kyustendil (N 42-17, E 22-41)-Gyuashevo (N 42-14, E 22-48) line.
    - (3) Fifth section - Sofia-Saran'ovo (N 42-13, E 24-06) line.
  - b. Fourth section: Headquarters Cherven Bryag (N 43-16, E 24-06). Lines of jurisdiction:
    - (1) Cherven Bryag-Pleven (N 43-25, E 24-36), via Yasen (N 43-25, E 24-31).
    - (2) Cherven Bryag-Oryakhovo (N 43-44, E 23-56); narrow-gauge line.
  - c. Tenth section: Headquarters Plovdiv. Lines of jurisdiction:
    - (1) Plovdiv-Saran'ovo (N 42-13, E 24-06).
    - (2) Plovdiv-Chirpan (N 42-11, E 25-18)-Orizovo (N 42-12, E 25-11).
    - (3) Saran'ovo-Razlog (N 41-57, E 23-33); narrow gauge line.
  - d. Eleventh section: Headquarters Dupnitsa (N 42-15, E 23-06). Lines of jurisdiction:
    - (1) Radomir (N 42-33, E 22-58) - Dupnitsa - Petrich (N 41-24, E 23-13).
    - (2) Rila (N 42-08, E 23-08) - Rilski Manastir (N 42-08, E 23-19) narrow gauge line.
  - e. Twelfth and thirteenth sections: Headquarters Stara Zagora (N 42-25, E 25-38). Lines of jurisdiction:
    - (1) Twelfth section: Orizovo (N 42-12, E 25-11) - Mikhaylovo (N 42-15, E 25-32) - Stara Zagora - Nova Zagora (N 42-29, E 26-01) - Yambol (N 42-28, E 26-31) line.

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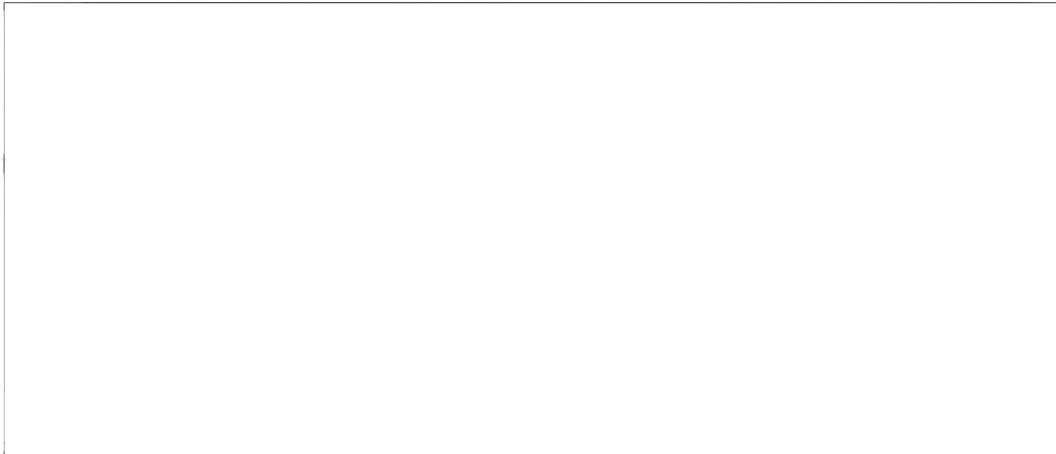
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25X1

- (2) Thirteenth section: Stara Zagora - Tryavna (N 42-52, E 25-30) - Dryanovo (N 42-58, E 25-28) - Turnovo (N 43-04, E 25-40) line.
- f. Fourteenth section: Headquarters Gorna Oryakhovitsa (N 43-07, E 25-41).  
Lines of jurisdiction:
- (1) Gorna Oryakhovitsa - Levski (N 43-22, E 25-08).
- (2) Gorna Oryakhovitsa - Popovo (N 43-21, E 26-14) - Turgovishte (N 43-14, E 26-33) - Shumen (N 43-16, E 26-55).



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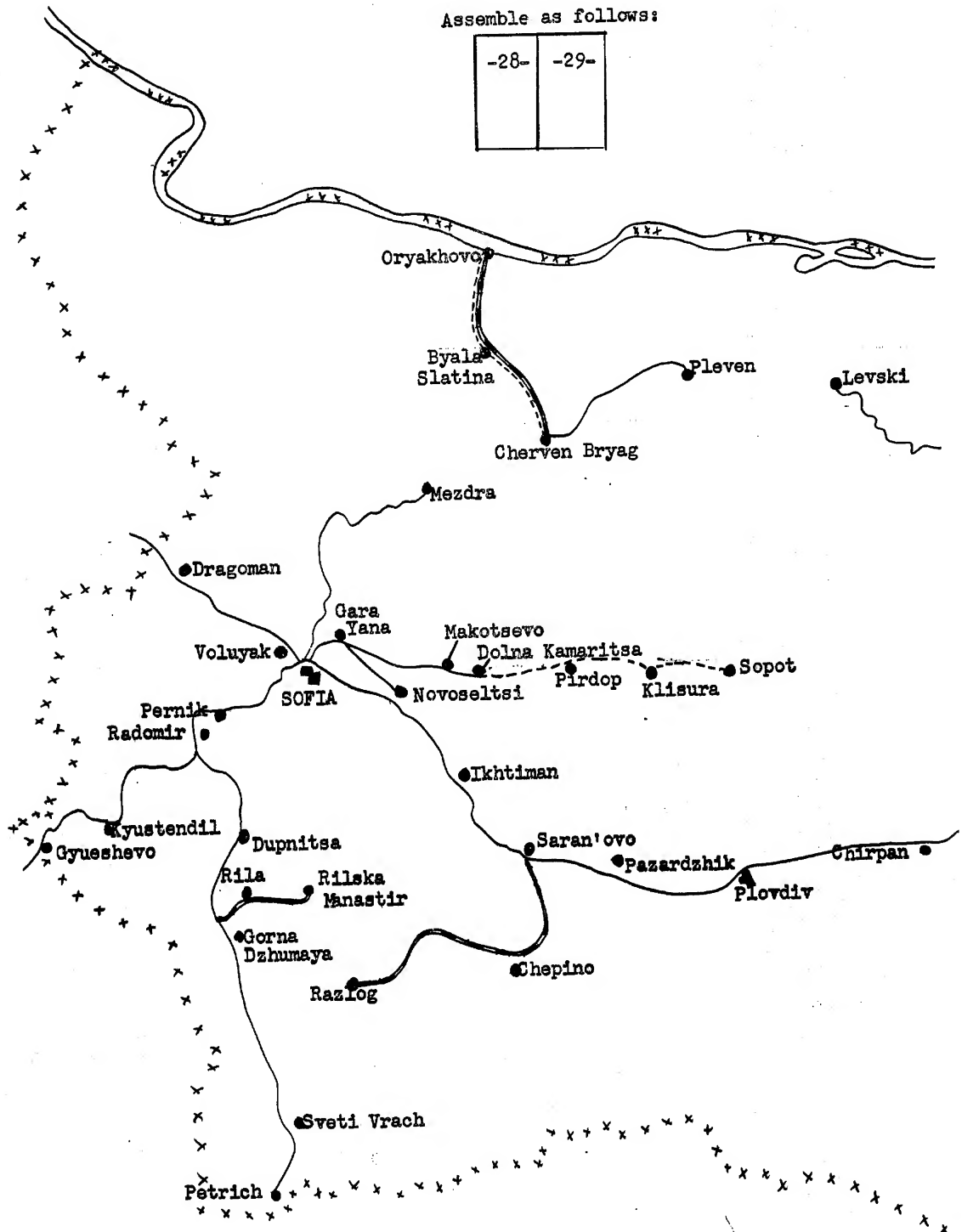
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## APPENDIX A

Partial Scheme of the Bulgarian Railway Network

Assemble as follows:

-28-	-29-
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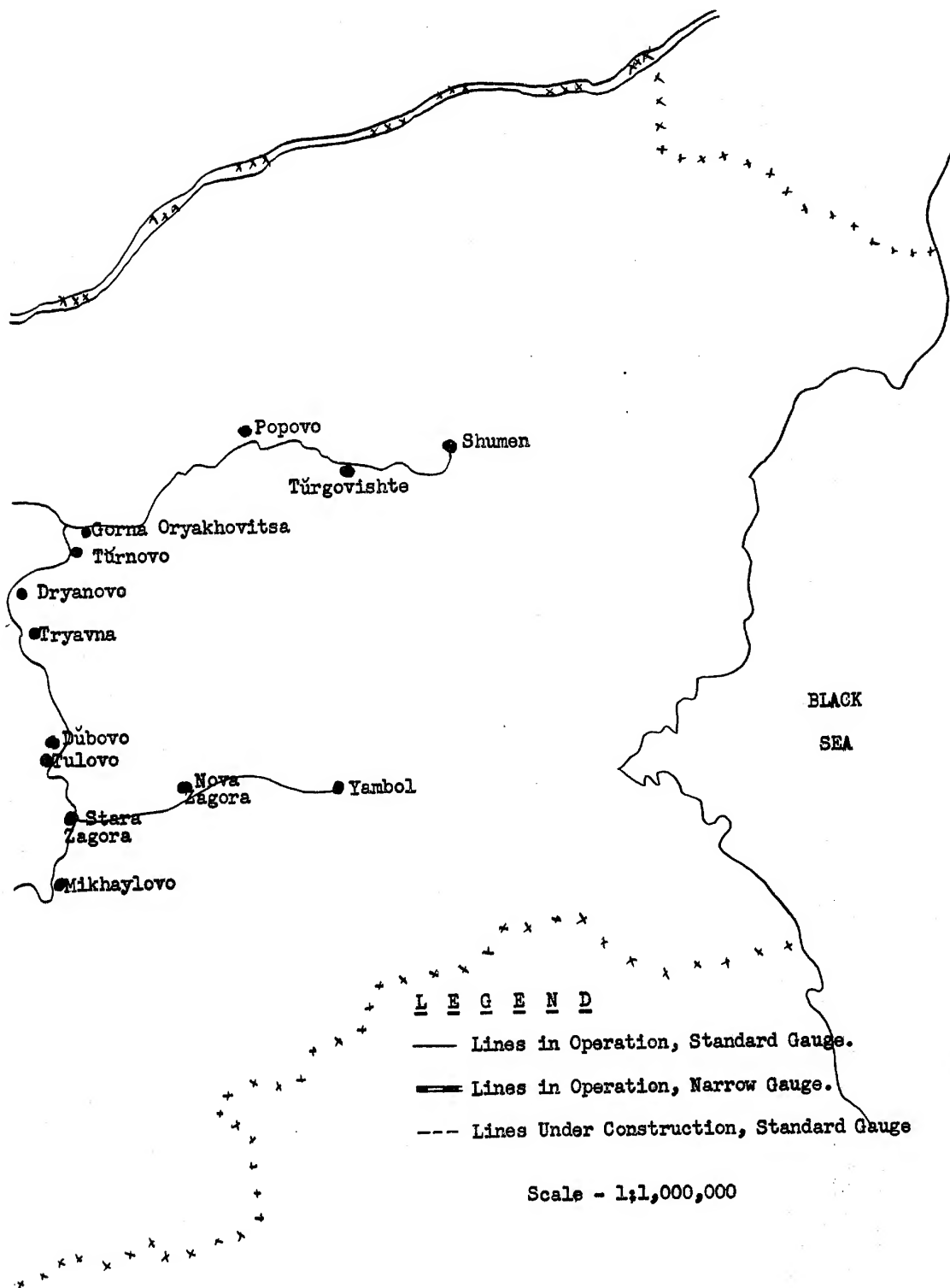


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APPENDIX B

-30-

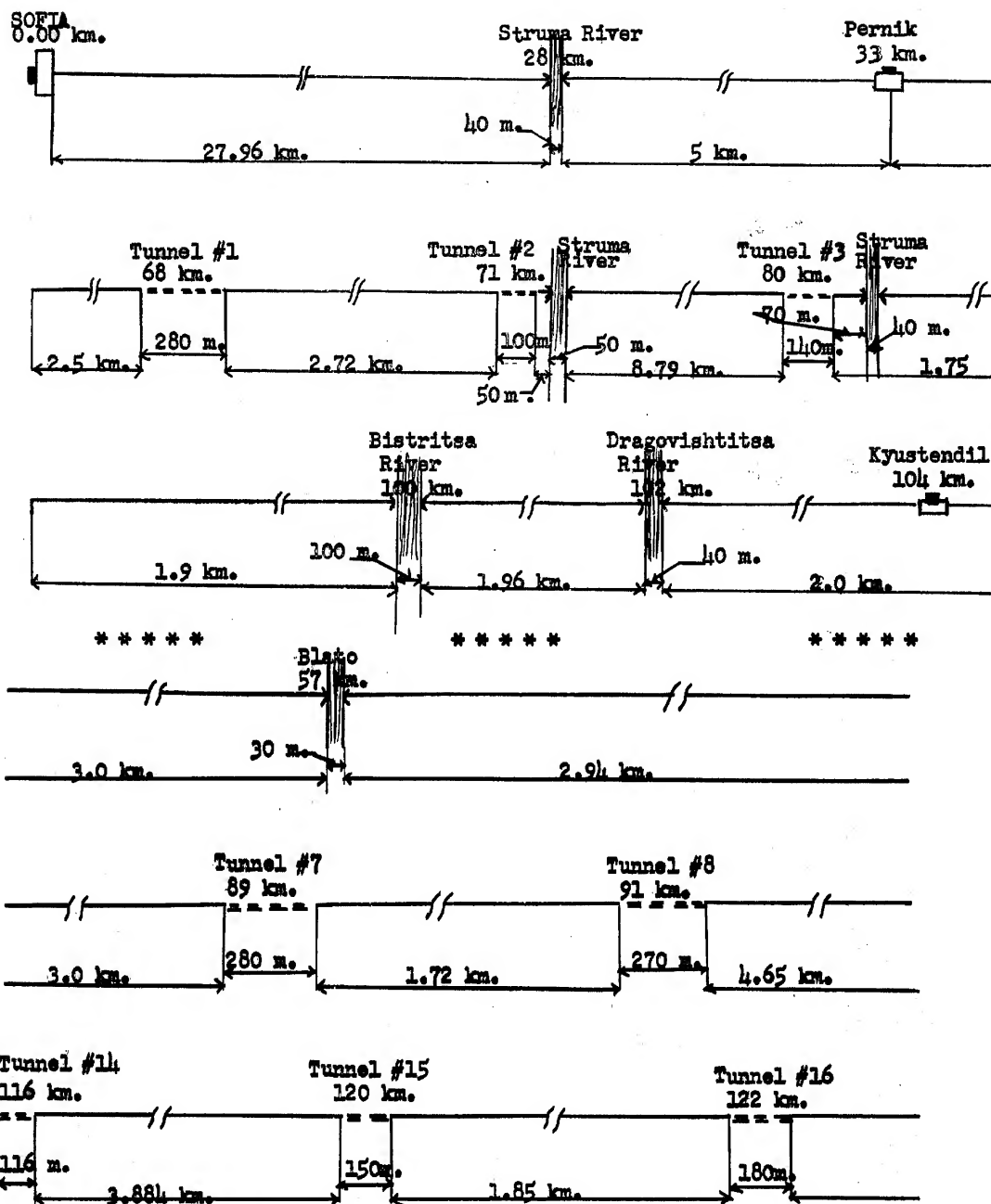
25X1

Succession of Bridges and Tunnels on the Sofia-Gyueshevo Line

Assemble as follows:

-30-	-31-
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Scale 1:12,000

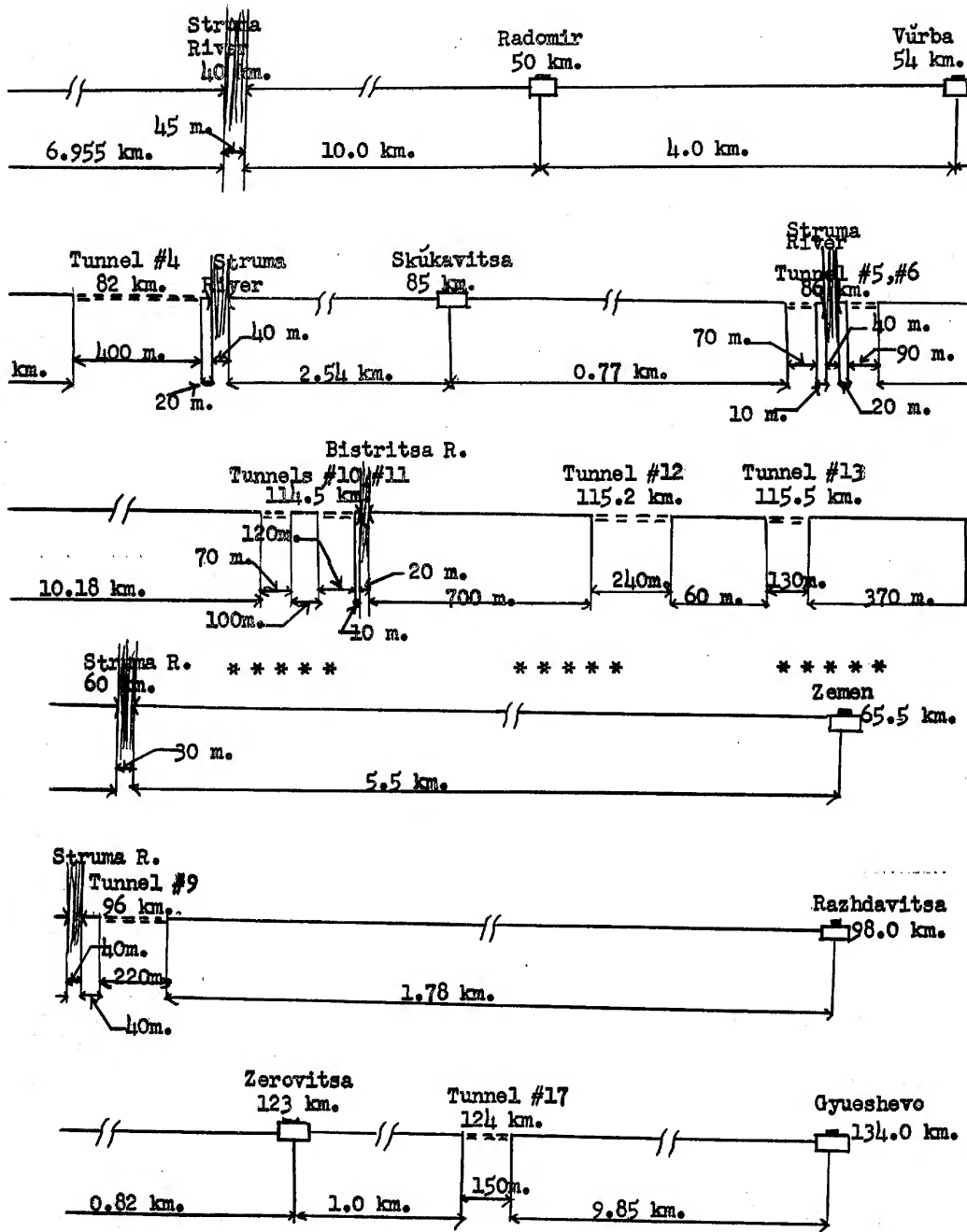


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APPENDIX C

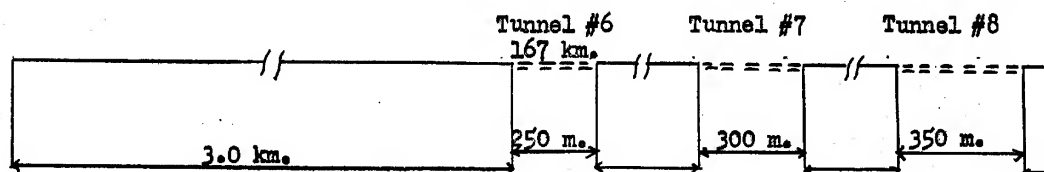
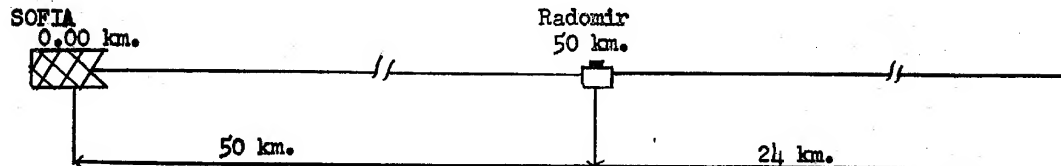
-32-

25X1

Succession of Bridges, Tunnels, and Aqueducts on the Sofia-Petrich Line

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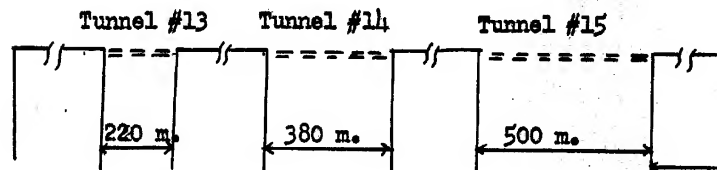
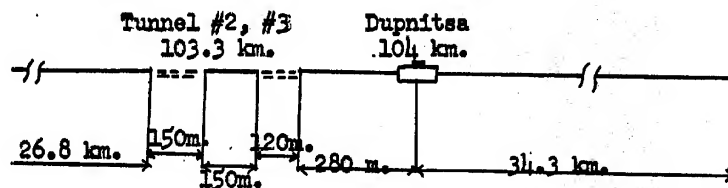
-32-	-33-
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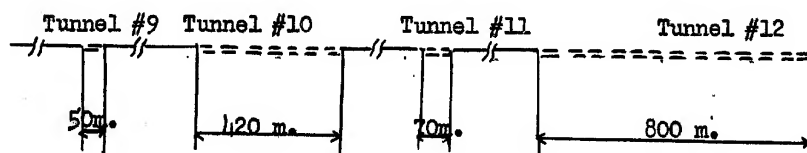
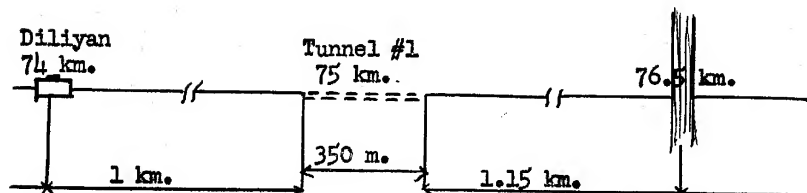


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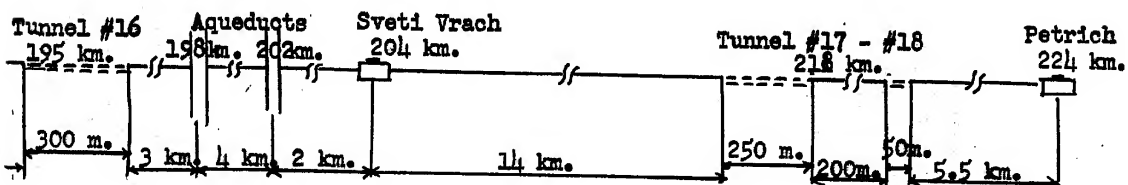
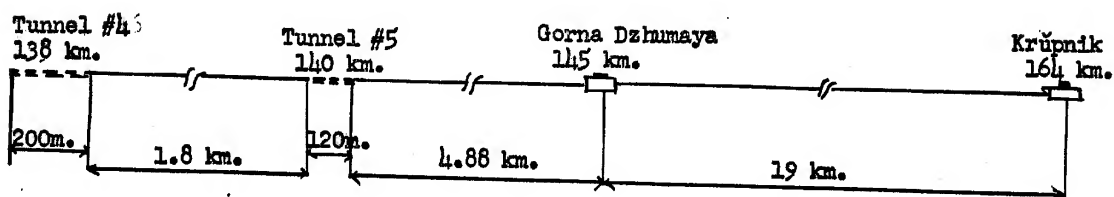
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## APPENDIX D

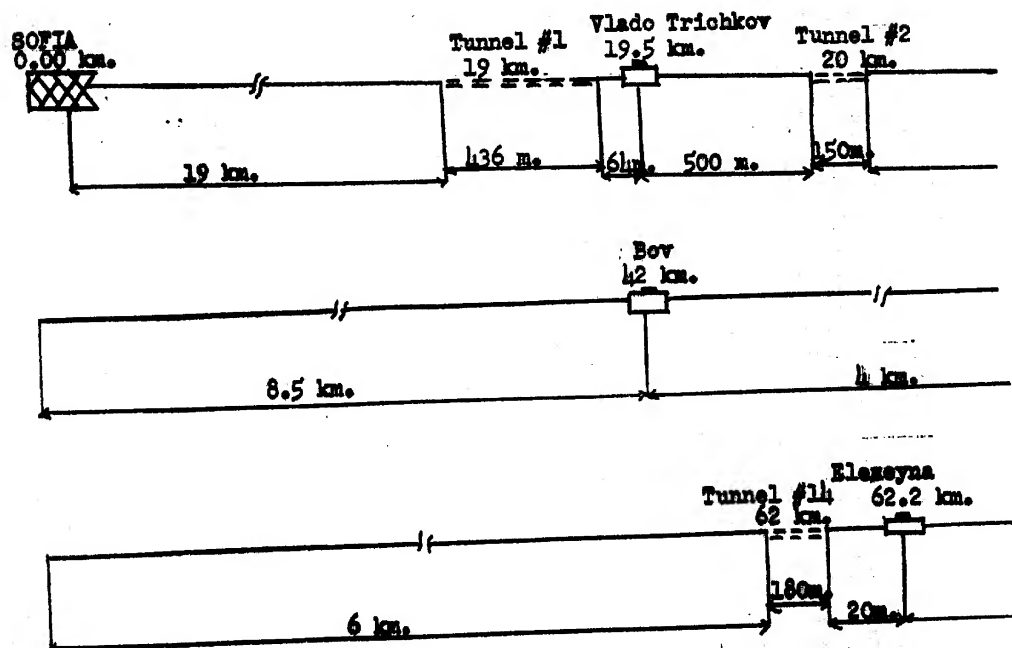
-34-

25X1

Succession of Tunnels on the Sofia-Mezdra Line

Assemble as follows:

-34-	-35-	-36-	-37-
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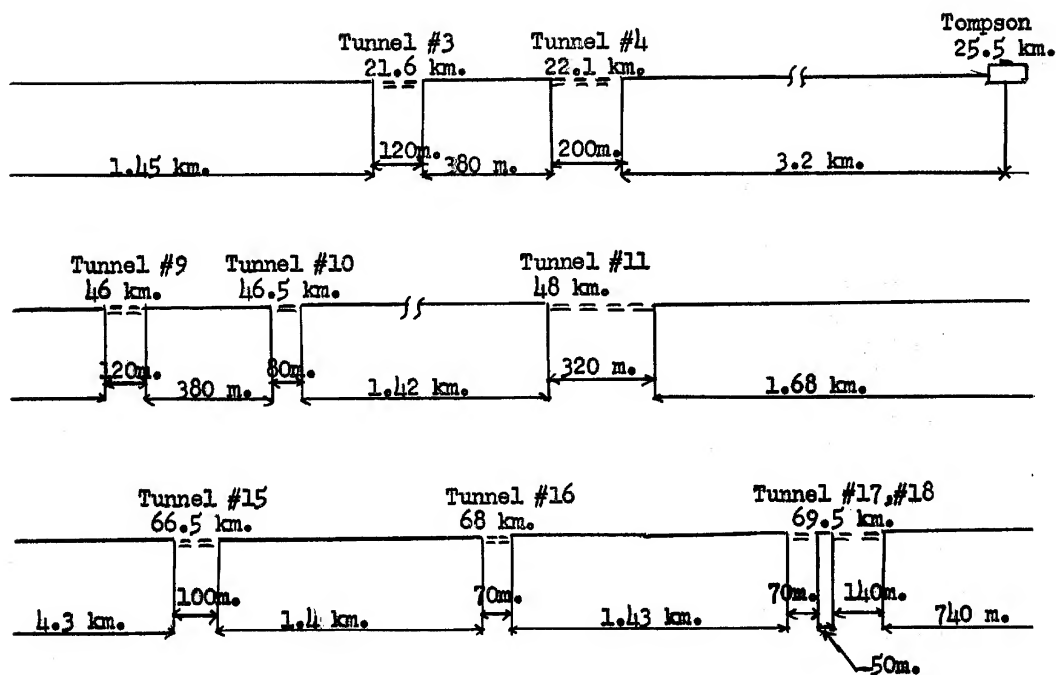
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-35-



25X1

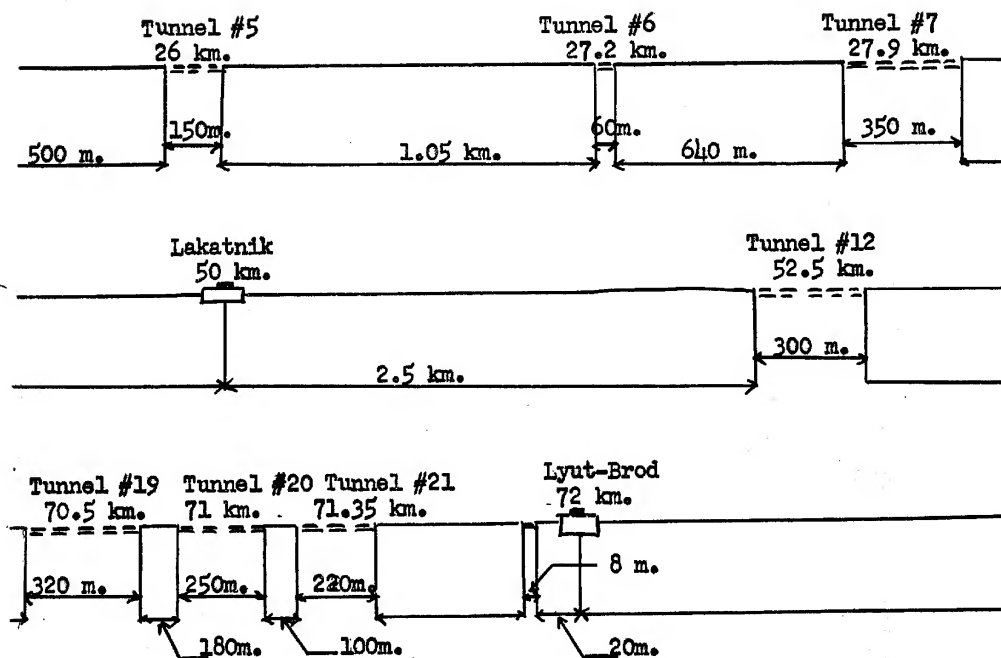


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25X1

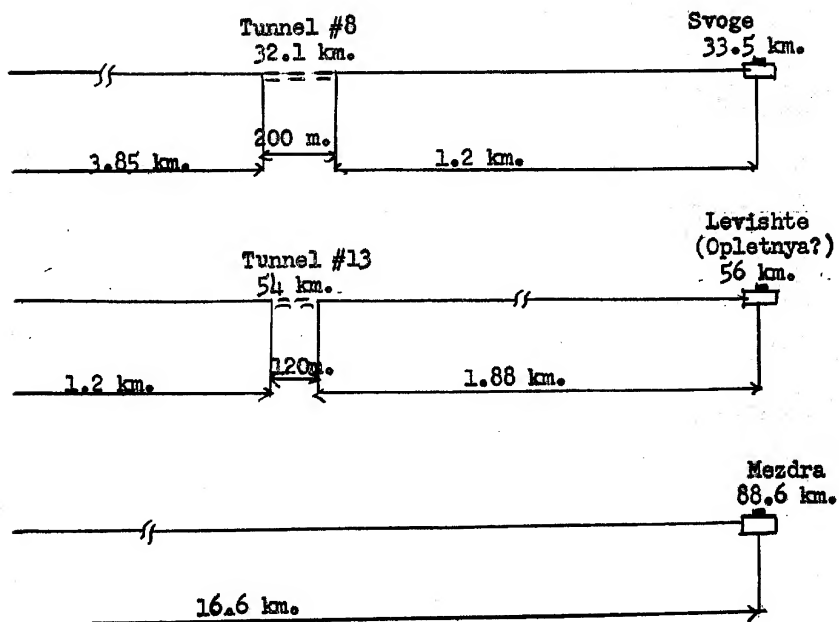


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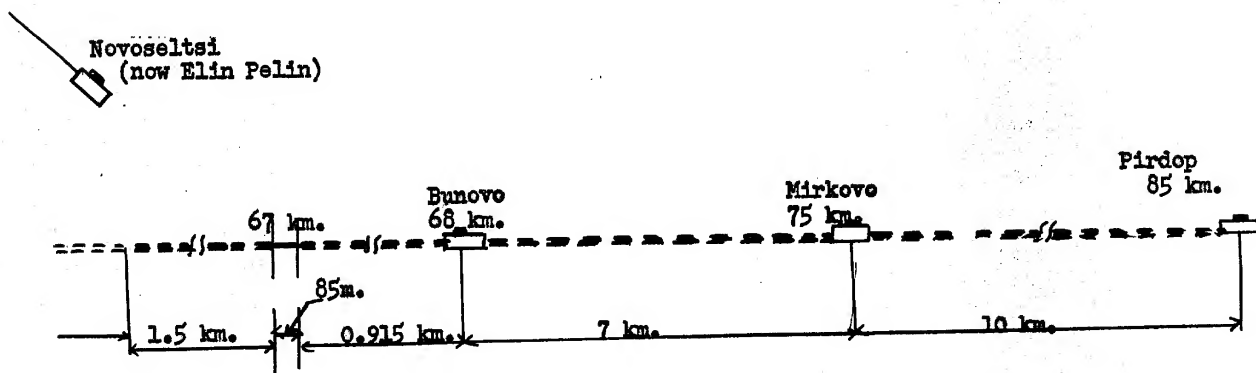
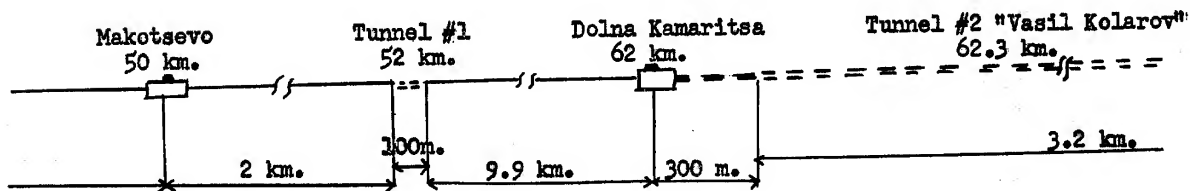
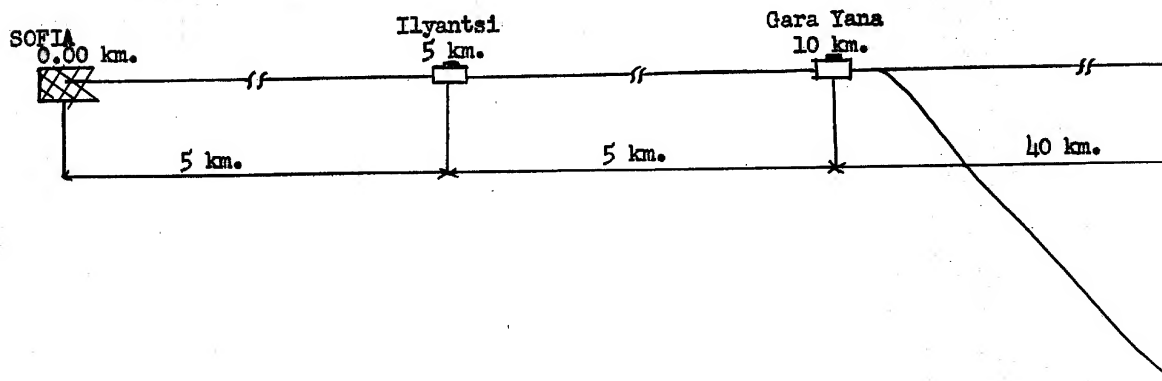
APPENDIX E

-38-

25X1

Succession of Viaducts and Tunnels on the Sofia-Pirdop Line

Scale 1:12,000



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